Local Area Networks (LANs)

1. For each of the following network topologies, discuss the consequences if a connection fails.

    a. Bus topology
    b. Star topology
    c. Ring topology

2. In CSMA, the use of p-persistent techniques reduces the probability of a collision.

    a. What does CSMA stand for?
    b. How does the CS part improve utilisation?
    c. Describe the p-persistent technique.
    d. What is the effect of increasing the value of p?

3. A bridge and a switch can both reduce collision domains. Why would you choose a switch over a bridge? What can a bridge do that a switch cannot do? What does the term cut-through mean when applied to switches?

4. A 80-station traditional Ethernet is divided into four collision domains. This means that a maximum of _____ stations contend for medium access at any one time. If Gigabit Ethernet is used, calculate the average bandwidth available for each host?

    a. 320
    b. 80
    c. 76
    d. 20

5. Where would you use a Layer 4 switch instead of a Layer 2 switch?

6. In the term CSMA/CD, the CD stands for Collision Detection. Explain how Collision Detection makes CSMA/CD better than CSMA.